AK

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address COMMISSIONER FOR PATENTS
PO Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO
10 055,265	01 22 2002	Tso-Hung Fan	JCLA8124	6749

7590 08 07 2003

J.C. Patents, Inc.
Suite 250
4 Venture
Irvine, CA 92618

EXAMINER
HARRISON, MONICA D

ART UNIT	PAPER NUMBER
2829	

DATE MAILED: 08/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	10/055,265	FAN ET AL.	
	Examiner	Art Unit	
	Monica D. Harrison	2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Satoh et al (6,531,350).

2. Regarding claim 1, Satoh et al discloses a method for fabricating a non volatile memory, comprising: providing a substrate (Figure 1C, reference 100) having a strip stacked structure thereon, wherein the strip stacked structure comprises a gate conductive layer (Figure 1C, reference 140) and a dielectric layer (Figure 1C, reference 120); forming a buried drain in the substrate beside the strip stacked structure (Figure 1N, references 103 and 105); forming an insulating layer on the buried drain (Figure 1N, reference 124); forming sequentially a silicon layer (Figure 1N, reference 127) and a cap layer (Figure 1N, reference 130) over the substrate covering the strip stacked structure and the insulating layer (Figure 1N); patterning the cap layer, the silicon layer, and the strip stacked structure in a direction perpendicular to the buried drain to form a plurality of gate structures (Figure 1N); forming a liner layer on exposed silicon surfaces

of the silicon layer, the gate structures, and the substrate (Figure 1N, reference 127); removing the cap layer (column 2, lines 43-50); and forming a metal salicide layer on the silicon layer (column 9, lines 4-15).

3. Regarding claim 2, Satoh et al discloses a method for fabricating a nitride read only memory, comprising providing a substrate having a strip stacked structure thereon, wherein the strip stacked structure comprises a gate conductive layer (Figure 2C, reference 240) and a charge trapping layer (Figure 2C, references 222, 223, and 231); forming a buried drain in the substrate beside the strip stack structure (Figure 2L, reference 205); forming an insulating layer on the buried drain (Figure 2L, reference 243); forming sequentially a silicon layer (Figure 2M, reference 226) and a cap layer (Figure 2M, reference 232) over the substrate covering the strip stacked structure and the insulating layer (Figure 2M); patterning the cap layer, the silicon layer, and the strip stacked structure in a direction perpendicular to the buried drain to form a plurality of gate structures (Figure 2M); forming a liner layer on exposed silicon surfaces of the silicon layer, the gate structures, and the substrate (Figure 2M, reference 228); removing the cap layer (column 11, lines 47-63); and forming a metal salicide layer on the silicon layer (column 13, lines 19-41).

4. Regarding claim 3, Satoh et al discloses wherein forming the metal salicide layer comprises forming a titanium salicide layer (column 13, lines 31-33).

5. Regarding claim 4, Satoh et al discloses wherein forming the titanium salicide layer requires a temperature from about 600 degrees Celsius to about 800 degrees Celsius (column 9, lines 4-6).

6. Regarding claim 5, Satoh et al discloses wherein forming the metal salicide layer comprises forming a cobalt salicide layer (column 13, lines 31-33).

7. Regarding claim 6, Satoh et al discloses wherein forming the cobalt salicide layer requires a temperature from about 600 degrees Celsius to about 700 degrees Celsius (column 9, lines 4-6).

8. Regarding claim 7, Satoh et al discloses wherein the charge trapping layer comprises one selected from the group consisting of silicon oxide/silicon nitride/silicon oxide (ONO) stacked layer, a silicon nitride/silicon nitride/silicon nitride (NNN) stacked layer and a silicon nitride/silicon nitride/silicon oxide (NNO) stacked layer (Figure 2C, references 222, 223, and 231).

9. Regarding claim 8, Satoh et al discloses wherein the liner layer comprises silicon oxide (Figure 2L, reference 226).

10. Regarding claim 9, Satoh et al discloses wherein the silicon layer comprises polysilicon (Figure 2L, reference 242).

11. Regarding claim 10, Satoh et al discloses wherein the insulating layer comprises silicon oxide formed from tetraethyl-ortho-silicate (TEOS-oxide) (column 6, lines 43-46).

12. Regarding claim 11, Satoh discloses wherein the cap layer comprises silicon nitride (Figure 2D, reference 230).

13. Regarding claim 12, Satoh et al discloses a method for fabricating a read only memory, comprising: providing a substrate (Figure 1D, reference 100) having a strip stacked structure thereon, wherein the strip stacked structure comprises a gate conductive layer (Figure 1D, reference 140) and a gate dielectric layer (Figure 1D, reference 126); forming a buried drain

in the substrate beside the strip stacked structure (Figure 1N, references 103 and 105); forming an insulating layer on the buried drain (Figure 1N, reference 124); forming sequentially a silicon layer (Figure 1N, reference 127) and a cap layer (Figure 1N, reference 130) over the substrate covering the strip stacked structure and the insulating layer (Figure 1N); patterning the cap layer, the silicon layer, and the strip stacked structure in a direction perpendicular to the buried drain to form a plurality of gate structures (Figure 1N); forming a liner layer on exposed silicon surfaces of the silicon layer, the gate structures, and the substrate (Figure 1N, reference 127); removing the cap layer (column 2, lines 43-50); and forming a metal salicide layer on the silicon layer (column 9, lines 4-15).

14. Regarding claim 13, Satoh et al discloses wherein forming the metal salicide layer comprises forming a titanium salicide layer (column 9, lines 4-8).

15. Regarding claim 14, Satoh et al discloses wherein forming the titanium salicide layer requires a temperature from about 600 degrees Celsius to about 800 degrees Celsius (column 9, lines 4-6).

16. Regarding claim 15, Satoh et al discloses wherein forming the metal salicide layer comprises forming a cobalt salicide layer (column 9, lines 4-8).

17. Regarding claim 16, Satoh et al discloses wherein forming the cobalt salicide layer requires a temperature from about 600 degrees Celsius to about 700 degrees Celsius (column 9, lines 4-6).

18. Regarding claim 17, Satoh et al discloses wherein the liner layer comprises silicon oxide (Figure 1D, reference 127).

19. Regarding claim 18, Satoh et al discloses wherein the silicon layer comprises polysilicon (Figure 1D, reference 140).

20. Regarding claim 19, Satoh et al discloses wherein the insulating layer comprises silicon oxide formed from tetraethyl-ortho-silicate (TEOS-oxide) (column 6, lines 43-46).

21. Regarding claim 20, Satoh discloses wherein the cap layer comprises silicon nitride (Figure 1D, reference 130).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica D. Harrison whose telephone number is 703-305-4758. The examiner can normally be reached on M-F 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kammie Cuneo can be reached on 703-308-1233. The fax phone numbers for the organization where this application or proceeding is assigned are 703-306-7382 for regular communications and 703-305-3839 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1782.

Monica D. Harrison
AU 2829

mdh
July 24, 2003